

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number  
**WO 2005/040850 A1**

(51) International Patent Classification<sup>7</sup>: **G01S 13/46**,  
13/89, G01B 11/00, G02B 26/10

(21) International Application Number:  
PCT/GB2004/004135

(22) International Filing Date:  
28 September 2004 (28.09.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0324179.1 15 October 2003 (15.10.2003) GB

(71) Applicant (for all designated States except US): **ISIS IN-  
NOVATION LTD** [GB/GB]; Ewert House, Ewert Place,  
Summertown, Oxford OX2 7SG (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **DANIEL, Ron**  
[GB/GB]; Department of Engineering Science, University  
of Oxford, Parks Road, Oxford OX1 3PJ (GB).

(74) Agents: **HIBBERT, Juliet** et al.; Kilburn & Strode, 20 Red  
Lion Street, London WC1R 4PJ (GB).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SI, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,  
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.



**WO 2005/040850 A1**

(54) Title: DEVICE FOR SCANNING THREE-DIMENSIONAL OBJECTS

(57) Abstract: A scanning system and method for constructing a three-dimensional model of an object, the scanning system comprising: a scanning device (2) and a scanning template member (4). The scanning device (2) has an emitter (20) for projecting light and a sensor (22) for capturing images, the emitter and the sensor being, in use, in a fixed position relative to each other. The scanning to template member (4) has a known two-dimensional template (42). Processing means generates data to enable construction of a three-dimensional model of an object (8) placed between the scanning device (2) and the scanning template (42), the processing means being arranged, when in use, to generate information about the object (8) relative to the scanning template (42), this information being generated from the same image onto which the projected light is projected by the emitter. Both measurements are made relative to the same reference plane.